

blade being used as a carrier for a separate polishing abrasive distributed in the microreliefs.

24. (New) A method according to Claim 14, wherein making a microrelief further comprises performing surface chemical etching of the substrate.

25. (New) A method according to Claim 14, wherein making a microrelief further comprises forming a planarizing coating on the substrate.

26. (New) A method according to Claim 14, wherein making a microrelief comprises using a "U" shaped blade having side portions comprising first abrasive grits and an end portion comprising second abrasive grits, the second abrasive grits being of a larger particle size than the first abrasive grits.

REMARKS

The Office Action dated October 23, 2001, has been carefully considered. In response to the Office Action, Applicants have amended the application. Applicants request that the Examiner consider the following remarks, and then pass the application to allowance.

Pending Claims:

Claims 14-26 are now pending.

Rejection Under 35 U.S.C. § 112, Second Paragraph:

Claims 14-21 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Office Action makes reference to FIG. 5B, stating that FIG. 5B and the corresponding portion of the specification describe motion which is perpendicular, rather than parallel, to the surface of the substrate, and that this is in contravention of the language of Claim 14. Applicants respectfully submit that FIG. 5B does not provide an optimal view of the motion described in Claim 14. Rather, the motion is better illustrated in FIG. 5C, which depicts cuts 70, 72, and 74 extending parallel to the surface of wafer 62. These cuts result from the mechanical machining set forth in Claim 14, which machining comprises "moving at least one tool translationally and parallel to the substrate." It is therefore respectfully submitted that the claim language pertaining to parallel motion is consistent with the description of the specification and drawings, which describe and depict parallel motion.

The Office Action also takes issue with the phrase "simultaneous with first step or after the latter, a second step..." This phrase has been deleted from Claim 14. Also deleted from Claim 14 is the reference to "first" and "second" steps, since it is preferred that the claim not be limited to a specific order in which the steps of the invention are performed.

Claim 16 has been amended to delete reference to a step for obtaining optical quality, and recites instead the further limitation that the making of the microrelief is performed to the extent of obtaining an optical quality of said microrelief.

Art Rejection Under 35 U.S.C. § 102(b):

Claims 14, 16, 17, 19 and 20 were rejected under 35 U.S.C. § 102(b) as anticipated by Beasley (U.S. Pat. No. 3,748,724) and Smith, et al. (U.S. Pat. No. 5,557,836). Claim 14 has been amended to recite "cutting out the microcomponents in the substrate such that individual microcomponents or groups of microcomponents are separated from each other." By comparison, Beasley and Smith, et al., are directed to the manufacture of large retro-reflecting devices in which the individual elements or groups of elements are not separated. Separation is avoided in Beasley and Smith, et al. because such devices require arrays consisting of multiple elements to function. Separation in the scale of these large retro-reflecting devices would render them inoperative. Neither Beasley nor Smith, et al. teach or suggest the separation of the individual microcomponents or groups of microcomponents from each other, as set forth in Claim 14. Claims 14, 16, 17, 19 and 20 are therefore patentably distinct over Beasley and Smith, et al., and passage of same to allowance is respectfully requested.

Conclusion:


In view of the preceding discussion, Applicants respectfully urge that the claims of the present application define patentable subject matter and should be passed to allowance. Such allowance is respectfully solicited.

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney, Mr. Khaled Shami, at (650) 622-2332.

Respectfully submitted,

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MARKED UP COPY OF CHANGES

In the Claims:

Amend Claims 14, 16-18, 20 and 21 as follows:

14. (Amended) A method for making microcomponents [(76,102)] exhibiting microreliefs of an optical quality[,] in a substrate [(62, 82, 92)], comprising[of]:

- [a first step for] making [the desired] a microrelief [(70, 72, 74; 80, 82; 100)] for each microcomponent by mechanical machining of the substrate, the mechanical machining [consisting of] comprising moving at least one tool translationally and parallel to the substrate[,] ; and

- [simultaneously with first step or after the latter, a second step for] cutting out the microcomponents in the substrate such that individual microcomponents or groups of microcomponents are separated from each other.

16. (Amended) A method according to Claim 14, wherein [the first step] making a microrelief is performed to an extent of [further comprises a step for] obtaining optical quality of the microrelief.

17. (Amended) A method according to Claim 14, wherein the microrelief is made with a single tool [(68, 78)] moved at the surface of the substrate.

18. (Amended) A method according to Claim 14, wherein the microrelief is made by several tools [(88, 98)] working simultaneously and/or in succession.

20. (Amended) A method according to Claim 14, wherein the microcomponents are microprisms [(80, 100)].

21. (Amended) A method according to Claim 14, whrein the microprisms are made by a "V" profile abrasive blade [(78)].